

Amendments to the Claims

This listing of claims will replace all prior revisions and listings of claims in this application.

Listing of Claims

- 1 1. (Currently Amended) A method of estimating a pose of a human head in natural scenes
2 comprising the steps of:
3 generating, a sparse representation of a human face by transforming a raw facial
4 image into sets of vectors representing fits of the face to a random, sparse set of model
5 configurations;
6 training, the sparse representation to a set of face(s) in known poses; and
7 determining, a pose of a head by comparing the trained representation(s) to a
8 facial image.
- 1 2. (Cancelled) The method according to claim 1 further comprising the steps of:
2 transforming a raw facial image into sets of vectors representing fits of the face to
3 a random, sparse set of model configurations (the sparse representation).
- 1 3. (Currently Amended) The method according to claim [2] 1 wherein the transforming
2 step further comprises the step of:
3 collecting, salient features of the face image which are useful to estimate the pose
4 of the face.
- 1 4. (Original) The method according to claim 3 wherein the transforming step further
2 comprises the step of:
3 suppressing, irrelevant variations of face appearance.

1 5. (Original) The method according to claim 4 wherein the training step further comprises
2 the steps of:

3 learning, using Support Vector Regression (SVR), a relation between the sparse
4 representation and the pose(s).

1 6. (Withdrawn) A method of estimating the pose of a human head in a natural setting
2 comprising the steps of:

3 constructing, a set of sparse representation filters (SRF) to accumulate edge
4 response along a boundary of a facial landmark, shaped such that the response is smooth
5 with respect to the changes in the position and the shapes, between a model and image
6 data;

7 applying, SRF to training images producing $SRF(I_\alpha)$;

8 training the relation $SRF(I_\alpha) \rightarrow pose(I_\alpha)$;

9 determining a sparse representation $SR(J_\alpha)$ for each subject image (J_α); and

10 determining, a pose of the subject image.